

What Is Claimed Is:

1. A switch for directing the path of a light signal, said switch comprising:

a member comprising a hole and a reflector;

first, second, third and fourth light transmitting elements, said first and third light transmitting elements being disposed on one side of said member, and said second and fourth light transmitting elements being disposed on the other side of said member; and

an actuator for moving said member so as to selectively:

(1) position said hole intermediate said first and second light transmitting elements, and intermediate said third and fourth light transmitting elements, so as to optically couple said first and second light transmitting elements, and so as to optically couple said third and fourth light transmitting elements; and

(2) position said reflector intermediate said first and second light transmitting elements, and intermediate said third and fourth light transmitting

elements, so as to optically couple said first and third light transmitting elements, and so as to optically couple said second and fourth light transmitting elements.

2. A switch according to claim 1 wherein said first, second, third and fourth light transmitting elements comprise fiberoptic elements.

3. A switch according to claim 1 wherein said actuator comprises a microelectromechanical (MEM) device.

4. A switch according to claim 3 wherein said actuator comprises a MEM comb drive.

5. A switch according to claim 1 wherein a Grin lens is disposed between said first and third light transmitting elements and said member.

6. A switch according to claim 1 wherein a Grin lens is disposed between said second and fourth light transmitting elements and said member.

7. A switch according to claim 1 wherein said first, second, third and fourth light transmitting elements comprise thermally expanded core (TEC) fiberoptic elements.

8. A switch for directing the path of a light signal, said switch comprising:

first, second and third cantilevers, each of said cantilevers having a reflective region formed thereon;

means for deflecting said first cantilever from a first position to a second position; and

a reflective surface, said reflective surface being positioned so as to:

(1) receive light reflected off said reflective region of said first cantilever and direct the light to said reflective region of said second cantilever when said first cantilever is in said first position; and

(2) receive light reflected off said reflective region of said first cantilever and direct the light to said reflective region of said third cantilever when said first cantilever is in said second position.

9. A switch according to claim 8, further comprising:

means for deflecting said second cantilever from a first position to a second position; and

a second reflective surface, said second reflective surface being positioned so as to:

(1) receive light reflected off said reflective region of said second cantilever and direct the light to a first output port when said second cantilever is in said first position; and

(2) receive light reflected off said reflective region of said second cantilever and direct the light to a second output port when said second cantilever is in said second position.

10. A switch according to claim 9, further comprising:

means for deflecting said third cantilever from a first position to a second position; and

a third reflective surface, said third reflective surface being positioned so as to:

(1) receive light reflected off said reflective region of said third cantilever and direct the light to a third output port when said third cantilever is in said first position; and

(2) receive light reflected off said reflective region of said third cantilever and direct the light to a fourth output port when said third cantilever is in said second position.

11. An optical attenuator comprising:

a support;

an arm attached to said support;

a mirror attached to said arm; and

microelectromechanical means for moving said arm so as to selectively position said mirror across a

light path extending between two light transmitting elements.

12. An optical attenuator in accordance with claim 11 wherein said mirror is disposed at a non-perpendicular angle relative to said light path.